Space Data Corporation

Air-To-Ground Proceeding
WT Docket No. 03-103

Gerald Knoblach
Chairman and CEO

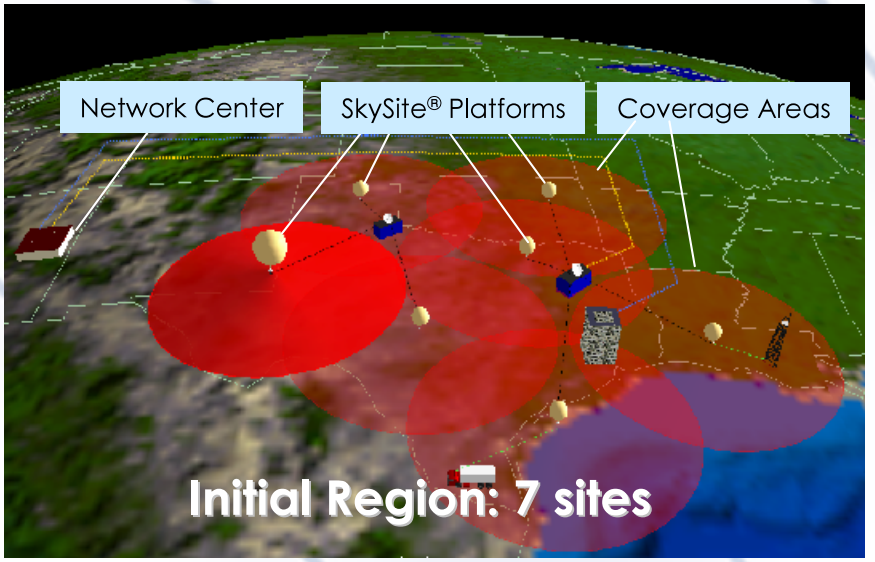
November 1, 2004

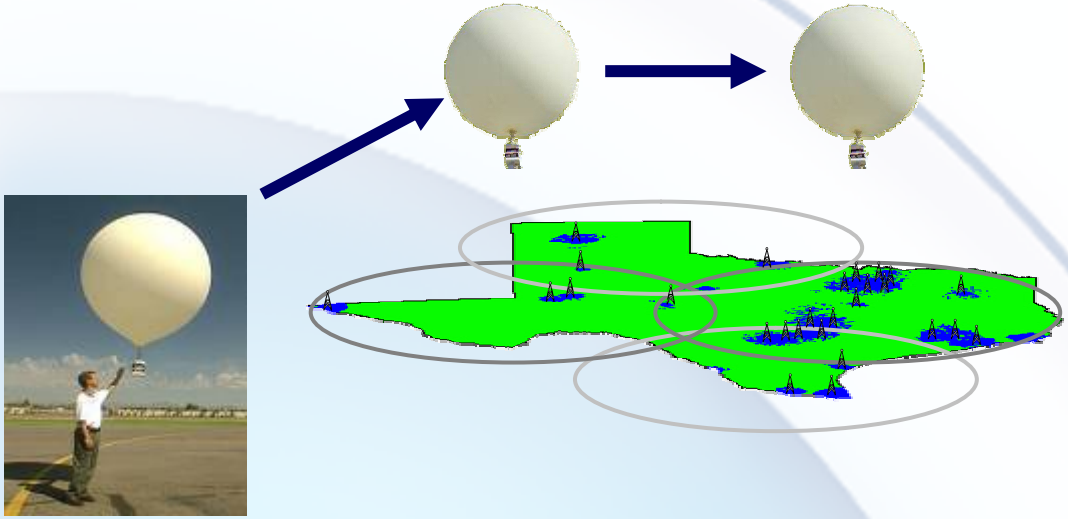
Space Data® CORPORATION

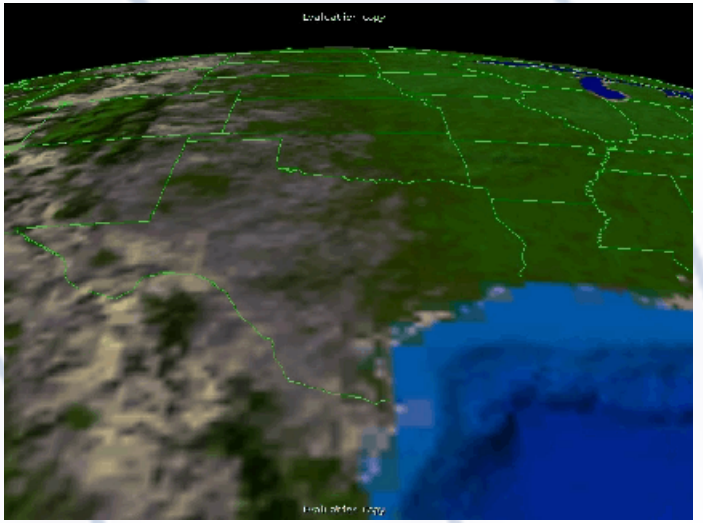
Space Data's Current System

Currently deployed 24 x 7 operation

- Oil & gas telemetry
  - 75,000 wells need new service due to loss of CDPD
- Local / regional fleet tracking
- A single SkySite® Platform covers a 420-mile diameter circle







Each SkySite® rises to 100,000 feet and levels off. In the uniform winds at that altitude, a constellation of interlocking SkySites® float in unison to blanket large regions with coverage. New SkySites® are launched every 12-24 hours to replace the previous constellation which is taken down, recovered and reused.

Space Data® CORPORATION

ATG Licensing Proposals

- Two exclusive MHz licenses produce best competitive results.
  - 2.5-3.0 MHz license can support CDMA technology.
  - 1.0 MHz license can provide voice and SMS service that is competitive with larger ATG licensee.
  - 1.4-1.5 MHz license can support technologies such as iDEN and GSM to provide a variety of services, including voice, Internet access, and SMS to ATG customers.
    - At least 1.4 MHz is needed to support data to users (WiDEN (80 Kbps) requires four 25 kHz paired channels with a reuse of 7).
    - Licenses smaller than 1.4 MHz support voice/low speed data.
  - Stratospheric platforms are ideally suited for providing ATG services.
    - Adaptable to market demand – total coverage from fewer sites scaling to many sites as market grows.
    - No near-far interference eliminates need for guard bands.
  - Incumbent's operations can be protected during the transition to the new licensing scheme.

Space Data® CORPORATION

ATG Licensing Proposals (Cont.)

- Exclusive 4 MHz license
  - Retains non-competitive ATG market
  - Promotes inefficient use of scarce ATG spectrum
- More detailed analysis is needed to determine the proper amount of guard band spectrum for ATG services.
  - Commenters advocate an additional 125 kHz guard band, effectively increasing a 2.5 MHz license to 3 MHz.
  - Existing cellular channelization plan suggests that narrower guard bands are adequate.
  - Near-far interference more constrained for ATG than cellular; detailed analysis likely will show that even narrower guard bands are adequate.
  - Guard band use in adjacent bands should be analyzed.
  - CDMA ATG network can be stacked next to Cellular B Block, much of which is CDMA technology, without interference (within cellular band, carriers stack CDMA channels next to each other with no guard band).

Space Data® CORPORATION

ATG Licensing Proposals (Cont.)

- AirCell's and Boeing's proposal to assign two overlapping 3 MHz licenses by adding 125 kHz guard band does nothing to solve technical and regulatory obstacles associated with overlapping licenses.
  - Significant technical risk
  - Inflexible design
    - Rigid fixed site locations
    - Significant, ongoing technical coordination between licensees will make it difficult for licensees to react to changes in market demands and technologies
  - Requires the FCC to promulgate detailed base station location, sharing, and interference requirements
    - Requirements become even more complicated to craft if each licensee uses different technologies / protocols.

Space Data® CORPORATION

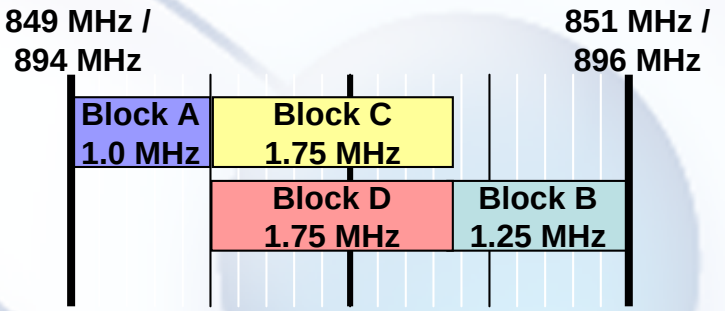
Combinatorial Bidding Offers Viable Market-Based Compromise

- Exclusive license allocations would best serve the development of the ATG market and the public interest. Space Data suggests a compromise that takes into account other licensing proposals.
- The ATG auction can be designed so that bidders determine whether exclusive or overlapping licenses are assigned, and thus the best use of the four MHz of ATG spectrum.
- The ATG spectrum can be divided into four auctionable frequency blocks, which can be combined.

Space Data® CORPORATION

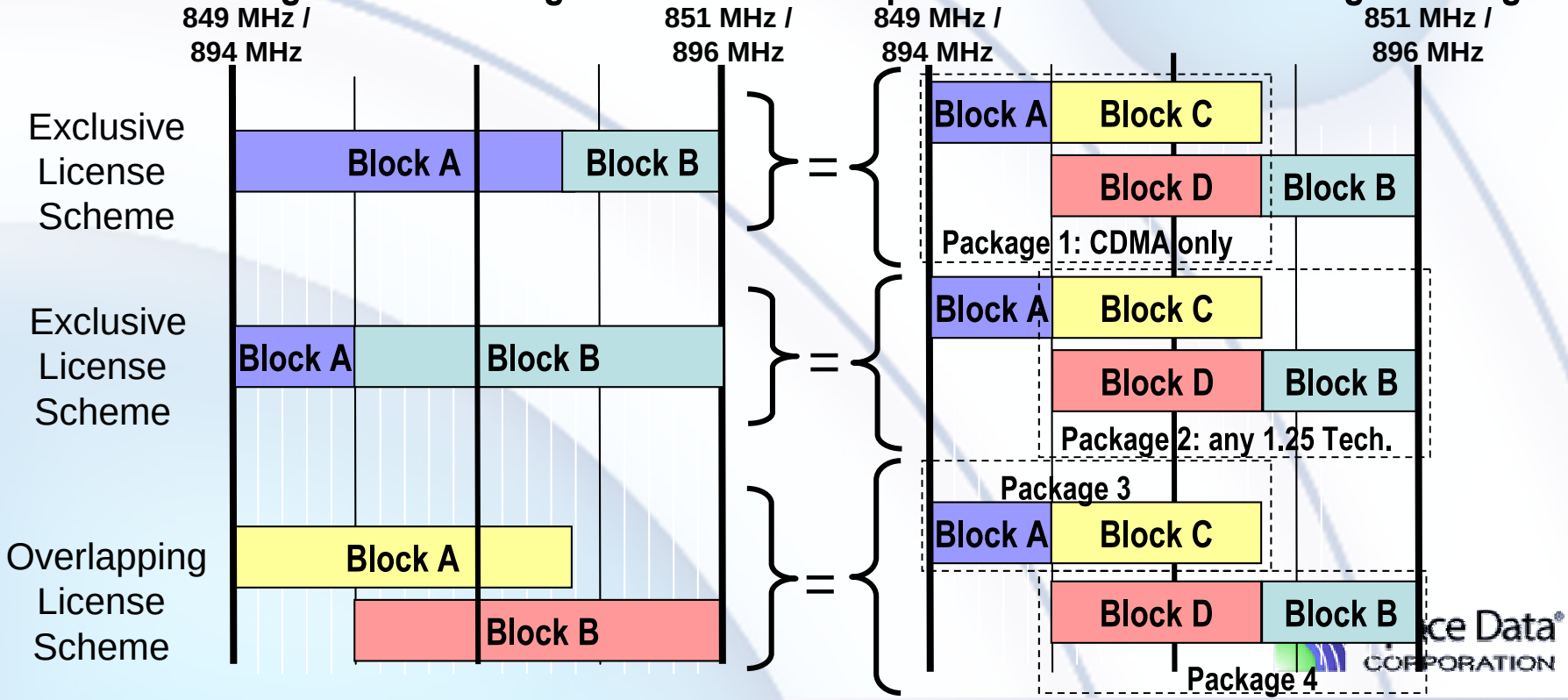
Proposed Bidding Package With Guard Band Allocation*

Proposed scheme with package bidding:
- A Block: exclusive use 1.00 MHz
- B Block: exclusive use 1.25 MHz with initial period of sharing with legacy ATG
- C Block: shared use of 1.75 MHz
- D Block: shared use of 1.75 MHz



Current Licensing Schemes being Considered

Equivalent Schemes w/ Package Bidding



*License allocation can vary depending upon amount of guard band.

An ATG Auction Must Include:

- Cross-ownership restrictions
  - Prohibiting one entity (or two affiliated entities) from holding all ATG licenses will ensure competition rather than allow one carrier to monopolize ATG services.
    - If shared spectrum licenses are used, one entity should be prohibited from holding both exclusive blocks.
  - Consistent with the FCC's approach to ensuring competition in other developing wireless markets
- Bidding credits
  - Encourages small businesses to invest in and deploy ATG networks.

Space Data® CORPORATION

Summary

- To enjoy true competition, the consumer must have a choice of wireless providers in the aircraft cabin.
- A two-exclusive license proposal is realistic and feasible to implement from a technical and policy perspective.
- Stratospheric systems are fully capable of providing significant ATG services with either CDMA or OFDM technology or narrow channel technology; any service rules should permit this new technology.
  - Secondary use to uncovered terrestrial users should be allowed
- A single exclusive license proposal grants an ATG monopoly.
- Excessive guard bands will create fallow spectrum.
- An auction using combinatorial bidding packages would provide a viable market-based compromise between licensing proposals and allow for all technologies.

Space Data® CORPORATION